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# Latest technology and communication consistency in hospitality: a comparison between two Mediterranean countries

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## ABSTRACT

The goal of this research is to examine customers' perceptions of the latest technology solutions and marketing communications within the hotel context in two Mediterranean countries – Croatia and Italy. In particular, hotel guests of four- and five-star hotels located in these countries participated in the research. Firstly, guest perceptions of advanced Information and Communication Technology (ICT) and communication consistency are analysed and compared in Croatian and Italian hotels. Secondly, the impact of ICT on communication consistency is tested in both studies. The findings show that the level of customer perceptions of communication consistency is relatively high in both countries, while the perception of technology is moderate. The influence of ICT on communication consistency is also corroborated. The findings of this study have important implications for marketing managers who deal with increasingly demanding consumers in the current digital environment.

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## 1. Introduction

In the new global economy, advanced Information and Communication Technology (ICT) and efficient communication management have become one of the most important factors for business success. In particular, new technology solutions (Oh, Jeong, & Baloglu, 2013; Ruiz Molina, Gil Saura, & Šerić, 2013; Verma, Stock, & McCarthy, 2012) and communication consistency (Delgado-Ballester, Navarro, & Sicilia, 2012; Šerić, Gil-Saura, & Ruiz-Molina, 2014; Vernuccio, Ceccotti, & Pastore, 2012) have emerged as the key topics in the most recent marketing literature.

On one hand, new technologies are considered as one of the most significant driving factors of consistency in communication management – the key aspect of integrated marketing communications (IMC) (Gurău, 2008; Holm, 2006; Kim, Han, & Schultz, 2004; Kitchen,

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Brignell, Li, & Jones, 2004; Kliatchko, 2009; Luck & Moffatt, 2009). On the other hand, the integration of marketing communications implies the coordination and synergy of different communication tools and channels to achieve the maximum impact and is considered as an imperative for business success (Shimp, 2003).

The purpose of this work is to approach advanced ICT and communication consistency in the hotel context, more specifically in four and five-star hotel companies located in Croatia and Italy. A number of studies revealed that the implementation of new technologies results in notable advantages in competition, increasing profitability, cost reduction, efficiency, information-sharing (Ham, Kim, & Jeong, 2005; Lee, Barker, & Kandampully, 2003; Mihalič, Garbin Praničević, & Arnerić, 2015), and guest satisfaction (Karadag & Dumanoglu, 2009; Singh, Kim, & Huh, 2006). However, far too little attention has been paid to the impact of ICT on marketing communications in general and communication consistency in particular. Therefore, besides customers' perceptions of ICT and IMC, the relationship between the two constructs is empirically tested.

Recently, a considerable body of literature has grown up around the outside-in approach, meaning that companies' strategies start with the customer rather than the company itself (Gurău, 2008; Kliatchko, 2009; Mulhern, 2009; Šerić et al., 2014). However, little is known about the customers' perceptions of both latest technology solutions and marketing communications. Due to the fact that a number of authors (e.g., Gould, 2004; Mulhern, 2009) pointed out that consumer insights need further research, this investigation intends to understand the perception of the studied constructs from the customer perspective.

This article is structured in five parts. After the introduction, the conceptual framework is provided, together with research questions and hypotheses. In the third part, the implemented methodology is explained. Furthermore, data analysis and results are discussed in the fourth part, followed by discussion and conclusions that gather implications, limitations, and future research possibilities.

## 2. Conceptual framework and research questions and hypotheses

### 2.1. *Technology advances in hospitality*

Progress in ICT has been changing the tourism and hospitality sector from its early beginning. Technology has significantly transformed the hotel industry structure owing to the fact that it represents an integral part of hotel business practices (Minazzi, 2015). In particular, ICT-based services have emerged from technology as digital electronic methods and tools used to gather, process, share, and distribute information throughout the tourism and hospitality value chain.

According to Minazzi (2015), different ICT categories were identified as having a major impact on the tourism and hospitality contexts in recent decades. More specifically: (1) the development of Computer Reservation Systems (CRS) in the 1970s; (2) the Global Distribution Systems (GDS) in the 1980s; and (3) the development of networking facilities and interoperability as Internet, Extranet, and Intranet in the 1990s, additionally supported with a new set of applications for hotel management and electronic commerce (Chaffy, 2007).

Nowadays, the hotel industry is also taking advantage of social software (i.e., Web 1.0., Web 2.0 and Web 3.0) which enables hotels getting closer to their guests as well as attracting

new ones. These web platforms increase hotel capability to create additional value and produce unique implications for international marketing strategy (Berthon, Pitt, Plangger, & Shapiro, 2012; Kaplan & Haenlein, 2010). However, as stated by Mihalič et al. (2015), hotels need time to recognise the competitiveness potential of the mentioned social software generation. Still, once they start to implement it, its importance and contributions increase over time.

Considering both tourism and hospitality as information intensive contexts, the process of effective hotel information distribution supported with technological developments is highly important element for the whole hotel business process effectiveness (Buhalis, 2003; Sengupta & Bansal, 2012; Tsai, Song, & Wong, 2009), in particular for the customer/guest engagement process (Sashi, 2012). The majority of tourist products/services are sold before they are consumed, which emphasises the relevance of consistent hotel promotion and the distribution of such information to the right audience(s). This suggests that contemporary hospitality industry is highly dependent on successful information management (Buhalis & Costa, 2006) which, moreover, may be related with higher levels of non-financial hotel performances (Garbin Praničević, Alfirević, & Indihar Štemberger, 2011).

In addition, the literature highlighted three crucial dimensions of ICT's influence on the hospitality industry (DiPietro & Wang, 2010). Firstly, ICT is used for hotel business process automation and cost reduction. Secondly, after ensuring that individual processes are performed in the most effective way, additional benefits are obtained from enhanced communication within a hotel. Finally, marketing, hotel brand promotion, and customer relationships are also improved by means of ICT. When implemented and used within hospitality processes, these technologies increase opportunities for hotels to adopt a customer centric approach as well as to provide benefits by establishing the networks of partnership with other hotels related to the service provided (Buhalis and O'Connor, 2005). Obviously, ICT supporting hotel business can be considered as the noteworthy instrument in researching tourist needs, assessing the external environment and reshaping business process by simultaneously creating framework when facing the challenge and innovation.

Moreover, hotels are yet recognised as the most innovative segment of the tourism offer (Pikkemaat, 2008; Sundbo, Orfila-Sintes, & Sørensen, 2007). The prevalence of technological innovation in the hotel industry is also confirmed (Orfila-Sintes, Crespi-Cladera, & Martinez-Ros, 2005) as well as a positive effect of technological innovation on hotel image, profitability, and customer satisfaction (Jacob, Tinot, Aguiló, Bravo, & Mulet, 2003). The mentioned studies' outputs encourage further research to focus on ICT as a supporting factor to hotel marketing and promotion activities, and to provide new insights on the customer perception of technology implemented in certain hotels. In marketing, perception is concerned with understanding how the consumer views a product or service. In particular, the study of the perceptions of clients has helped define the discipline of marketing communications (Kerr & Drennan, 2010) and represents one of the key issues in hospitality research, especially in the current area characterised by the technological empowerment (Sigala, 2012). Accordingly, our first research question is as follows:

**Research question 1 (RQ1).** *What is the level of customer perception of latest technology?*

However, consumers' perceptions levels can be influenced by external factors such as geographical settings (Solomon, 2015). For example, when studying technology perceptions in hotels, Ruiz-Molina et al. (2013) concluded that location of the hotel property moderates

the perception of technology solutions. Similarly, Fuentes Moraleda, Figueroa Domecq, and Baltazar (2004) found that technology performance is not the same in Spain and Portugal, while Santomà (2004) demonstrated that ICT and communication quality differ in hotels located in five main European cities. On the basis of these findings, the first research hypothesis is proposed:

**Hypothesis 1 (H1).** *The level of customer perception of latest technology will be moderated by geographical setting, i.e., hotel location.*

## 2.2. Communication consistency as a basic principle of marketing communications

Communication consistency is considered as one of the basic aspects of the IMC approach (Lee & Park, 2007). As noted by Delgado-Ballester et al. (2012), IMC advocates that the coordination of brand messages must be consistent in order to create a positive brand image (Duncan & Moriarty, 1998; Madhavaram, Badrinarayanan, & McDonald, 2005), suggesting that brand value is increased by consistent communication of the brand over time (Keller, 1993).

Low (2000) employed three items to measure the essence of IMC: (1) integration, i.e., the extent to which marketing communication tools are planned by the same person; (2) strategic consistency, i.e., the extent to which the elements of the marketing communications programme are strategically consistent; and (3) message consistency, i.e., the extent to which the marketing communications tools focus on a common message. Accordingly, Navarro Bailón, Delgado Ballester, and Sicilia Piñero (2010) argued that tactical consistency is based on the 'one-voice' principle, meaning that common sound, visual or verbal elements are shared, normally within an advertising campaign (Keller, 2001). This type of consistency is related to the way the brand message is formulated. On the other hand, from a strategic point of view, consistency refers to the existence of sharing common brand meaning and content among multiple means of communication, responding on what is said about the brand (Duncan & Moriarty, 1998; Keller, 2008).

Lee and Park (2007) developed the 'unified communication for consistent message and image' dimension to evaluate the basic aspects of IMC. These authors assessed the message consistency through different marketing communication tools (i.e., advertising, public relations, sponsorship direct marketing, sales promotions, etc.) and channels (Internet, television, radio, printed media, etc.). In addition, they proposed to measure the visual (i.e., the use of logos and colours) and linguistic (i.e., the use of slogans and mottos) aspects of message consistency. Furthermore, this dimension is also related to those activities that purport to create a single brand image supported by a clear and consistent message. As creating and maintaining a consistent brand image over time is an important goal of IMC, the long-terms consistency was also evaluated.

Finally, the outside-in approach flows through the IMC literature as a common topic (Laurie & Mortimer, 2011). For example, Kitchen, Kim, and Schultz (2008) suggest that planning starts with receivers, not senders. Schultz (2006) argues the difference between being customer focused and customer-centric. While customer focused is when a company learns more about the habits and behaviours of the customer in order to identify opportunities for cross-selling, customer-centric is when the firm is actually listening to the customers, defining their needs and expectations and trying to satisfy them.

In the IMC research, the peculiarity of a brand in the eyes of consumers is not given by the product itself, but the way in which it is communicated (Reid, Luxton, & Mavondo, 2005). Along with the increased customer power, it is crucial for managers to understand how their marketing communication activities affect consumer perceptions and whether consumers perceive the message as consistent (Keller, 1993). It is important to note that consumers often find themselves with fragmented media images in a confusing marketing environment, which is why they can retain only a limited amount of information (Schultz, Tannenbaum, & Lauterborn, 1993).

On the basis of all these considerations we decide to evaluate the communication consistency from the customer point of view. In particular, we focus on the 'unified communication for consistent message and image' dimension as it embraces different types of consistency and we propose the following research question:

**Research question 2 (RQ2).** *What is the level of customer perception of communication consistency?*

Several authors have pointed out that perception of IMC differs according to the geographical setting of the company. Thus, Kitchen et al. (2008) found that IMC is perceived differently in advertising agencies located in Korea, the US and UK. Kerr, Schultz, Patti, and Kim (2008) showed that educators from six different countries perceive and implement differently IMC course syllabi. Thereby, we propose the following research hypothesis:

**Hypothesis 2 (H2).** *The level of customer perception of communication consistency will be moderated by geographical setting, i.e., hotel location.*

### 2.3. Implementing communication consistency through technology

The interaction between a consumer and a brand has increased significantly owing to technological advances. Due to its flexibility and wide selection of marketing communication tools, the integration of marketing communications enabled the identification of these touch points. In particular, advanced technologies have facilitated communication consistency, increase brand knowledge and as such are considered as a main driving factor of IMC (Luck & Moffatt, 2009).

As noted by Schultz (1996), it is not just communication technology implemented in media and message delivery systems that has altered the communication process, but the total technological revolution making one vast interconnected marketplace. McGrath (2010) reported that nowadays latest technology solutions have challenged a 'one-way' flow model, where message is delivered from a source to a receiver in a single-direction process, in order to encourage a consumer response and to create meaningful interaction. Under this perspective, consumers are active and proactive receivers of communication and as such have the potential to respond to marketing communications messages. Interactive electronic technologies make this possible (McGrath, 2010).

The development of advanced ICT has compounded the one-voice principle implied in message consistency through a number of different contact points to customers and stakeholders in an already fragmented global marketplace (Niemann-Struweg and Grobler, 2011). In this line, media proliferation, audience fragmentation, consumer empowerment, and databases management provoked all the integration and coordination approach. However, a number of authors suggest that technology should be considered as a main antecedent



of IMC in general and communication consistency in particular (Gurău, 2008; Kim et al., 2004; Kitchen et al., 2004; Kliatchko, 2009; Luck & Moffatt, 2009). We therefore propose the last hypothesis:

**Hypothesis 3 (H3).** *Latest technology influences positively and significantly communication consistency and this influence will be moderated by geographical setting, i.e., hotel location.*

### 3. Methodology

The empirical research took place in two different countries: on one hand Croatia, considered as one of the major emerging tourist destinations in the Mediterranean area (Marrero & Santana, 2008), is currently experiencing a remarkable tourism boom (Šerić & Gil-Saura, 2012), and on the other hand Italy is known as an established tourist destination and one of the largest in Europe. Both countries show a certain lack of empirical investigation regarding the constructs examined here, which makes it particularly interesting to approach them and to compare the results obtained in both settings.

The data were collected from 120 hotel guests who stayed in hotels in Croatia and 335 guests from hotels located in Italy. A structured questionnaire was created and pretested before its final submission. It was partially self-administered and partially administered through personal interviews with guests during their stay in the hotel. It consisted of closed questions measured by five-point Likert type scales and was written in English, Croatian, Italian, and Spanish.

To evaluate ICT, four items of the scale of Gil Saura and Ruiz Molina (2009) were used, after being adapted to the hotel context. The guests' perception of the following ICT aspects was evaluated: (1) hotel's investments in technology; (2) latest trend technology; (3) more advanced technology compared to other hotels; and (4) consideration of guests' opinions for ICT improvement.

Communication consistency was assessed using five items of the first IMC dimension of the scale proposed by Lee and Park (2007), named unified communications for consistent message and image. In particular, the following items were evaluated: (1) consistency through communication tools and channels; (2) visual consistency of message; (3) linguistic consistency of message; (4) brand image consistency; and (5) brand image long-term maintenance of consistency.

For data analysis, SPSS was used to analyse and compare guest perceptions of advanced ICT and communication consistency, while the Partial Least Squares (PLS) technique was employed to test the relationship between the two variables.

## 4. Data analysis and results

### 4.1. Sample profile

A total of 455 hotel guest participated in this research, 120 staying in 13 Croatian hotels and other 335 from 20 Italian hotels. We obtained the permission from hotel managers to interview 10 guests per hotel in Croatia and 20 guests in each hotel in Italy, thus obtaining a response rate of 92.3% and 83.8%, respectively. The guests were approached in hotel lobbies in both countries and were selected on the basis of their availability to participate in the research.

**Table 1.** Sample profile.

Hotel guests	Total sample		Croatian subsample		Italian subsample	
	N = 455	%	N = 120	%	N = 335	%
<i>Gender</i>						
Male	221	48.6	66	55.0	155	46.3
Female	234	51.4	54	45.0	180	53.7
<i>Age</i>						
18–25	41	9.0	7	5.8	34	10.1
26–35	94	20.7	30	25.0	64	19.1
36–45	133	29.2	23	19.2	110	32.8
46–55	109	23.9	30	25.0	79	23.6
56–65	58	12.8	22	18.3	36	10.7
>65	20	4.4	8	6.7	12	3.6
<i>Education</i>						
Primary education	11	2.4	3	2.5	8	2.4
Secondary education	123	27.0	8	6.7	115	34.4
Higher education	254	55.8	87	72.4	167	49.8
Postgraduate education	65	14.4	20	16.7	45	13.4
Others	2	0.4	2	1.7	/	/
<i>Occupation</i>						
Employee	204	44.8	65	54.2	139	41.5
Businessman	154	33.9	39	32.5	115	34.3
Student	47	10.3	4	3.3	43	12.8
Housewife	11	2.4	1	0.8	10	3.0
Retired	39	8.6	11	9.2	28	8.4
<i>Travel reason</i>						
Vacation	358	78.8	77	64.2	281	83.9
Business	75	16.4	39	32.5	36	10.7
Others	22	4.8	4	3.3	18	5.4
<i>Visit frequency</i>						
≤once a year	355	78.0	76	63.3	279	83.3
2–4 times a year	64	14.0	30	25.0	34	10.1
>4 times a year	36	8.0	14	11.7	22	6.6

When examining the total sample (N=455), over half of the respondents were female (51.4%). The majority of respondents were aged between 36 and 45 (29.2%) and 46 and 55 (23.9%), had higher education (55.8%), and were employees (44.8%). The largest group of respondents travelled for vacations (78.8%) and visited the hotel once a year or less (78.0%). While the profile of the Italian subsample, composed of 335 hotels guests, is rather similar to the total sample, the Croatian subsample (N=120) shows some differences. Thus, more men participated than women (55% vs 45%) and the largest group of respondents were between 26- and 35-years-old (25%) and 46- and 55-years old (25%) (see Table 1).

#### 4.2. Customer perception of latest technology and communication consistency

In the first phase of analysis, to answer the two research questions, descriptive statistics analysis was employed to evaluate the level of customer perception of latest technology (R1) and communication consistency (R2) in both studies. In addition, as the data did not show a normal distribution, the non-parametric Mann-Whitney U test was performed to test the first two research hypotheses, i.e., whether the level of customer perception of both technology (H1) and communications consistency (H2) changes significantly in different geographical settings.



**Table 2.** Latest technology and communication consistency: descriptive statistics and U test.

		Total sample <i>N</i> = 455		Croatian subsample <i>N</i> = 120	Italian subsample <i>N</i> = 335	U test
Items		Mean	DT	Mean rank	Mean rank	Sig.
Latest technology	Investments in technology	3.43	1.03	269.35	213.19	0.00
	Latest trend technology	3.05	1.15	288.00	206.51	0.00
	More advanced technology compared to other hotels	2.86	1.13	286.38	207.09	0.00
	Consideration of guest opinion for ICT improvement	3.30	0.95	256.18	217.91	0.00
Communication consistency	Communication tools & channels consistency	3.96	0.80	269.91	212.99	0.00
	Visual consistency	3.98	0.74	256.63	217.75	0.00
	Linguistic consistency	3.97	0.76	246.28	221.45	0.05
	Brand image consistency	4.01	0.76	260.69	216.29	0.00
	Long-term consistency	3.92	0.78	246.68	221.31	0.04

As shown in Table 2, as a response to the first research question, the results reveal a moderate customer perception of new technologies in all hotel properties. The investments in technology is the ICT aspect that reached the highest scores on the total sample, while the perception of more advanced technology is the lowest scored item. In addition, the U test reveals that, when observed separately, the Croatian subsample reaches higher scores in all the ICT items, being all the differences statistically significant. This finding confirmed the first research hypothesis (H1), that posited the existence of the moderating role of geographical setting in customer perceptions of latest technology solutions.

Regarding the second research question (R2), brand image consistency is the item that reached the best score when the total sample was observed, while the long-term consistency was the lowest assessed IMC aspect. The consistency of marketing communication tools and channels and linguistic consistency were the highest evaluated items in Croatia and Italy, respectively. If the two subsamples are compared, once again hotels located in Croatia seemed to perform better. All the items reached higher scores in the Croatian subsample and the differences between the two subsamples were significant, thus confirming the second research hypothesis (H2) (see Table 2).

#### **4.3. The influence of latest technology on communication consistency**

The second phase of analysis involved an examination of the influence of latest technology on communication consistency (H3). Therefore, confirmatory factor analysis was carried

**Table 3.** Confirmatory factor analysis: total sample ( $N = 455$ ).

Items		Loadings	t value	CRON. $\alpha$	CR	AVE
Latest technology	Investments in technology	0.87*	66.01	0.87	0.91	0.73
	Latest trend technology	0.87*	70.28			
	More advanced technology compared to other hotels	0.88*	69.83			
	Consideration of guest opinion for ICT improvement	0.78*	30.72			
Communication consistency	Communication tools & channels consistency	0.86*	68.44	0.92	0.94	0.75
	Visual consistency	0.86*	56.08			
	Linguistic consistency	0.89*	70.58			
	Brand image consistency	0.89*	68.94			
	Long-term consistency	0.84*	45.29			

Notes: CRON.  $\alpha$  = cronbach's alpha; CR = composite reliability; AVE = average variance extracted.

\* $p < 0.01$ .

out through the PLS method in order to test the final research hypothesis. The assessment of validity and reliability of the employed measurement scales of total sample (i.e., guests in both studies) was first performed. The analysis of items' loadings and cross-loadings (Bagozzi & Yi, 1988), and the average variance extracted (AVE) (Fornell & Larcker, 1981) for each factor was examined to ensure convergent validity of the measurement scale. All the loadings were higher than 0.6, while cross-loadings showed how strongly each item loaded on each other factor. Finally, AVE of both constructs exceeded the threshold of 0.5 (see Table 3).

Cronbach's Alpha and Composite Reliability (CR) were used to test the construct reliability. The obtained values were above the threshold of 0.7 for Cronbach's Alpha (Hair, Anderson, Tatham, & Black, 1999; Nunnally & Bernstein, 1994) and 0.6 for CR (Bagozzi & Yi, 1988), which showed good internal consistency of measurement scales (see Table 3).

The square root of AVE of both constructs was used to evaluate discriminant validity (Fornell & Larcker, 1981). The obtained values (i.e., 0.85 for latest technology and 0.86 for communication consistency) were greater than the inter-construct correlation (0.65), thus confirming that each construct is more highly correlated with its own measure than with any of the other construct (Barclay, Higgins, & Thompson, 1995).

As one of the objectives of this article was to test the role of geographical settings, i.e., hotel location, on the influence of technology on communication consistency, the total sample was divided in two. The first subsample was composed of guests who stayed in hotels in Croatia ( $N=120$ ) and the second one consisted of customers who visited hotels in Italy ( $N=335$ ). The data analysis was then performed in each of the two subsamples following the

**Table 4.** Confirmatory factor analysis: Croatian subsample ( $N = 120$ ).

Items		Loadings	t value	CRON. $\alpha$	CR	AVE
Latest technology	Investments in technology	0.85*	28.99	0.86	0.90	0.70
	Latest trend technology	0.68*	10.75			
	More advanced technology compared to other hotels	0.93*	66.90			
	Consideration of guest opinion for ICT improvement	0.88*	45.46			
Communication consistency	Communication tools & channels consistency	0.83*	34.82	0.90	0.93	0.71
	Visual consistency	0.80*	19.77			
	Linguistic consistency	0.86*	42.43			
	Brand image consistency	0.88*	37.51			
	Long-term consistency	0.85*	27.59			

Notes: CRON.  $\alpha$  = cronbach's alpha; CR = composite reliability; AVE = average variance extracted.

\* $p < 0.01$ .

same procedure as in the total sample. The measurement scales in both subsamples show good validity and reliability (see Tables 4 and 5).

To establish the significance of loadings, the t-values on the basis of 500 bootstrapping runs were computed (Chin, 1998). The relative prediction power of the proposed relationship was measured by R squared ( $R^2$ ) for latent variable, i.e., communication consistency. As the obtained values were above the threshold of 0.1 proposed by Falk and Miller (1992) in total sample ( $R^2 = 0.42$ ) and both subsamples (i.e.,  $R^2 = 0.33$  for the Croatian subsample and  $R^2 = 0.45$  for the Italian subsample), predictive relevance of the causal relationship was confirmed (Chin, 1998).

Once it was assured that the constructs were measured in the same way in both subsamples (Hair, Black, Babin, Anderson, & Tatham, 2006; Steenkamp & Baumgartner, 1998), to conduct the resampling process for both models, the construct level changes pre-processing was completed. This results in checking the vector of loadings for each construct in a resample to the corresponding vector in the full sample (Chin, 2000). According to the procedure suggested by Chin (2000) and followed by Keil et al. (2000), Qureshi and Compeau (2009), and Real, Roldán, and Leal (2014), when performing the multi-group analysis with PLS, it is necessary to consider the standard errors for the structural paths provided by PLS-graph in the re-sampling output and calculate the pooled estimator for the variance. This allowed calculating the t-test for the difference in paths between the two subsamples, which permits to test whether the hotel location can influence the proposed causal relationship by statistically comparing corresponding path coefficients in both cases. Earlier studies that

**Table 5.** Confirmatory factor analysis: Italian subsample ( $N = 335$ ).

Items		Loadings	t value	CRON. $\alpha$	CR	AVE
Latest technology	Investments in technology	0.87*	56.98	0.87	0.91	0.72
	Latest trend technology	0.90*	80.34			
	More advanced technology compared to other hotels	0.87*	55.11			
	Consideration of guest opinion for ICT improvement	0.76*	25.34			
Communication consistency	Communication tools & channels consistency	0.87*	58.73	0.92	0.94	0.76
	Visual consistency	0.87*	48.22			
	Linguistic consistency	0.90*	64.23			
	Brand image consistency	0.90*	54.02			
	Long-term consistency	0.84*	37.27			

Notes: CRON.  $\alpha$  = cronbach's alpha; CR = composite reliability; AVE = average variance extracted.

\* $p < 0.01$ .

compared corresponding paths had overlooked this aspect as they simply looked at the numerical values of path coefficients without conducting a statistical test (Keil et al., 2000).

The following formulas were implemented, following Chin (2000):

$$Sp = \sqrt{\frac{(m-1)}{(m+n-2)} \times SE_a^2 + \frac{(n-1)}{(m+n-2)} \times SE_b^2}$$

$$t = \frac{\beta_a - \beta_b}{Sp \times \sqrt{\frac{1}{m} + \frac{1}{n}}}$$

where  $Sp$  is the pool estimator for the variance,  $m$  and  $n$  are subsample sizes,  $SE_a$  and  $SE_b$  are respective standard errors of path, while  $\beta_a$  and  $\beta_b$  are respective paths.

As depicted in Table 6, the ICT impact on communication consistency is corroborated in both studies, being stronger in the case of Italian hotels ( $\beta=0.65$ ), thus confirming the last research hypothesis that posited the existence of a positive and significant influence of ICT on communication consistency, as well as the moderating role of geographical setting in the relationship. The antecedent role of new technology solutions in perceptions of marketing communications is therefore confirmed. These results further support the idea that new technologies have fundamentally changed the ways of interaction and communication. As suggested by Kim et al. (2004), the ability of new technologies to provide personalised, one-to-one, database-driven communication programmes enabled firms to move towards the IMC paradigm. Thereby, the findings of this study confirm previous theoretical assumptions, according to which IMC could not appear before because it was not achievable without new technologies (Duncan, 2002).

**Table 6.** The relationship between latest technology and communication consistency.

Relationship	Total sample <i>N</i> = 455		Croatian subsample <i>N</i> = 120		Italian subsample <i>N</i> = 335		Multi-sample analysis	
	$\beta$	<i>t</i>	$\beta$	<i>t</i>	$\beta$	<i>t</i>	Sp	<i>t</i>
Latest technology → communication consistency	0.65*	24.77	0.57*	13.18	0.67*	22.29	0.03	26.55

\**p* < 0.01.

## 5. Discussion and conclusion

The objective of this study was to test customer perceptions of technology advancements and communication consistency and to examine whether ICT can actually be considered as a communication consistency antecedent, as suggested in literature. In addition, the role of hotel location (Croatia vs Italy) was considered, both to observe how the level of guest perceptions changes in different geographical settings and to test whether the hotel location moderated the causal relationship between ICT and IMC, more specifically, unified communications for consistent message and image.

Regarding the first research question and hypothesis, the results of this study show that the level of perception of advanced ICT is rather moderate in both studies. This is in line with some previous works that revealed a moderate performance of the latest technological solutions (Ruiz Molina et al., 2013) when examined from the customer perspective (e.g., Beldona & Cobanoglu, 2007). In this line, Belodna and Cobanoglu (2007) concluded that hotel companies are slow to implement guestroom technologies because operators perceive that technology does not boost performance. In addition, Ruiz Molina et al. (2013) identified 'traditional hotels' as those that use less intensively advanced ICT solutions and, similarly to this study, found that the use of technology is determined by several factors such as location and ownership. In our study, when comparing technology performance in hotels located in Italy and Croatia, Croatian hotels show better results. This might be explained by the fact that Italian hotel properties are characterised by deep traditions and as such might show a certain indolence in adoption of latest technological applications. On the other hand, in Croatia there are more recently established hotels, with the most advanced ICT facilities.

With respect to the second research question and hypothesis, the findings reveal that the perception of communication consistency is rather high in both hotel groups. Therefore, the increasing implementation of IMC practices is corroborated in this research. This is in line with a number of studies which have highlighted that acceptance of IMC is growing rapidly (Edmiston-Strasser, 2009; Kitchen & Schultz, 2009) in the tourism related sectors (e.g., Dinnie, Melewar, Seidenfuss, & Musa, 2010; Elliott & Boshoff, 2008; Wang, Wu, & Yuan, 2009). However, when comparing hotels located in two countries, the Mann U Whitney non-parametric test showed that differences between Croatian and Italian hotels are significant in the case of all items. This finding might have important implications on a broader economic level, considering that Croatia is one of the major emerging, and rapidly growing, tourist destinations in the Mediterranean area (Šerić & Gil-Saura, 2012), showing considerable efforts in promotion of its tourism products. Therefore, communication consistency performed by hotel companies might be positively related with IMC practices in the tourism sector of Croatia in general, where the need for integration has proven to be as necessary as in other industries (Hudson, 2008).

Therefore, when observing the performance of both technology and communications consistency, surprisingly, hotels located in Croatia – an emerging tourist destination, performed better than those located in Italy – an established destination. These findings suggest that Croatian hoteliers implemented better latest technology solution and accomplished higher levels of consistency in communication of their services. This is an important implication for managers operating in Italian hotel properties, who need to implement advanced ICT and embrace the integration of different marketing communication tools and channels to deliver a more consistent message and make sure that it is subsequently perceived as such by final customers.

Finally, the third research hypothesis is confirmed, as the results reveal that latest technology exerts a positive and significant impact on communication consistency and that this influence is moderated by geographical setting, i.e., hotel location. In particular, the findings show that the antecedent role of ICT in the integration of marketing communication is stronger in the case of Italian hotels, meaning that technology drives consistency better when observed among guests who stayed in hotels located in Italy. Similarly to our findings, Gurău (2008) demonstrated that the interactivity, transparency, and memory of the web encourage the implementation of IMC, by combining message consistency and continuity with flexibility and customisation. Likewise, Šerić and Gil-Saura (2012) found that ICT have a positive and significant influence on IMC. However, the obvious question today relates to (re)defining the role, scope and applicability of IMC in the fourth area, labelled by Ewing (2009) as post Web 2.0 marketing, which is related to the emergence of interactive mobile technologies, online social networks, and virtual worlds.

The present study makes several noteworthy contributions to the tourism marketing literature. The research was designed to analyse guest perception of two topics that have received a considerable interest among both academics and practitioners – technology advancements and communication consistency, and to compare their performance in upscale hotels located in two different countries. Thereby, a contribution is made to the hospitality industry, specifically to the Croatian and Italian hotel segment. In addition, although the relationship between the two key concepts was funded in theory (Gurău, 2008; Kitchen et al., 2004; Kliatchko, 2009), there is a lack of empirical contributions on the impact of technology on communication. This gap is filled by the current empirical contribution as the relationship ICT–IMC was tested in two different geographical settings. Finally, the concepts are investigated from the customer perspective, emphasising their role of true ‘co-managers’ of business strategies. Information on customer is necessary if hotel companies want to reduce uncertainty and risk regarding ICT investments (Ruiz-Molina, Gil-Saura, & Moliner-Velázquez, 2011). Despite the fact that there are many sources for such information, customers themselves can provide the most valuable feedback, which is why firms need to stimulate customer involvement to obtain rapid diffusion on technology innovation (Sigala, 2012). This implies that insights on customer perceptions of ICT are necessary, an issue that is addressed in this work.

However, it should be noted that the data employed in our study might be vulnerable due to the convenience sampling methodology, meaning that the respondents who participated in the study do not truly represent populations of customers in upscale hotels. Thereby, to address this limitation and obtain more representative results, future research should be carried through random sampling, as more probability sampling would bring higher reliability and validity to the findings. In addition, our findings are limited to the Croatian and



Italian high-quality hotel segments, which imposes caution on interpretations of research hypotheses that have examined the moderating role of hotel location on the studied concepts. This is why this research needs to be repeated in other countries, comprising both established and emerging tourism destinations. In addition, future studies might go further and examine the constructs studied here in other hospitality and tourism companies, like restaurants and travel agencies, but also in different settings, such as retail or education. In addition, the role of the social web should be analysed as it is considered as one of the newest aspects of ICT.

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